CONCLUSIONS The incidence of side effect(s) of 5-minutes ATP stress with pump for myocardial perfusion imaging is about 85%. Chest pain, dyspnea and headache appears on about 60%, 55% and 38% of patients with ATP stress respectively. Seventy percent patients increase their heart rate and decrease their systolic blood pressure at 3 minutes during ATP infusion.

GW26-e3594

Assessment of cardiac morphological and functional abnormalities in patients with bicuspid aortic valve without significant valve dysfunction by speckle tracking echocardiography

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OBJECTIVES
1) to identify other possible morphological malformation happened to the heart with bicuspid aortic valve.
2) to assess left ventricular diastolic and systolic function in patients with bicuspid aortic valve and then to investigate its relation to aortic elasticity.

METHODS Thirty-nine patients (30M/9F; age 43.5±18.8 years; range 6 to 75 years) with no or mild impaired bicuspid aortic valve were recruited in accompany with twenty-nine controls (21M/8F; age 42.3±10.6 years; range 15 to 35 years) matched for age, sex and body surface area. Conventional echocardiography and speckle-tracking imaging echocardiography were performed in all subjects. Left ventricular diastolic parameters were acquired and aortic elastic properties were derived as well. Left ventricular myocardial strain and stain rate, rotation and rotation rate, and torsion were calculated. Left ventricular diastolic and systolic parameters were compared between the patients and controls. Correlation between aortic elastic parameters and left ventricular diastolic and systolic statistically significantly parameters was also analyzed.

RESULTS In patients with bicuspid aortic valve, the height of anterior mitral leaflet was longer(32.36±4.0 vs 26.3±1.9, P<0.001) compared with the controls. E deceleration time was longer (174.26±41.2 vs 120.82±28.9, P<0.001) in the patients than that in the controls and left atrial volume index in the patients was larger (33.8±17.7 vs 22.25±7.4, P = 0.001) in comparison with that in the controls. In addition, patients with bicuspid valve were found to have statistically significantly lower apical peak systolic circumferential strain (-23.62±7.0 vs -29.99±7.3, P=0.001) and stain rate (-1.81±0.4 vs -2.26±0.7, P=0.004), and middle peak systolic circumferential stain (-17.49±4.2 vs -21.4±5.5, P=0.002) compared with the healthy controls. It also documented a reduction of global circumferential strain (-19.12±4.2 vs -22.49±3.7, P=0.001) and strain rate (-1.63±0.3 vs -1.82±0.4, P=0.044) in patients with bicuspid valve. And the basal and apical rotation rate was significantly lower (-29.21±50.7 vs -67.70±21.2, P<0.001; 7.99±63.2 vs -42.17±18.3, P<0.001) in patients with bicuspid aortic valve than in controls as well. However no significant correlation were observed between aortic elastic parameters and left ventricular diastolic and systolic statistically significantly parameters in patients with bicuspid aortic valve.

CONCLUSIONS This study suggested the bicuspid aortic valve disease may be a genetic disorder associated with cardiac morphological malformation and left ventricular diastolic and systolic dysfunction, which is independent of aortic elastic lesion.

GW26-e1086

Experimental study of the relationship between the content of stromal cell-derived factor-1 in different period of myocardial infarction and left ventricle function

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OBJECTIVES To investigate the relationship between the content of stromal cell-derived factor-1(SDF - 1) in myocardium after myocardial infarction in different period and left ventricular function.

METHODS Twenty-three Chinese miniature pigs were randomly divided into the experimental group and the control group. The swines in experimental group were prepared as acute myocardial infarction model by ligating anterior descending coronary artery and were randomly divided into 6 subgroups according to the different time points after infarction. The Left ventricular end-diastolic diameter (LVDd), left ventricular ejection fraction (LVEF) and left ventricular short axis shortening rate (LVFS) were measured respectively. Global circumferential strain (GCS) and the radial strain (GRS) of left ventricle were both measured. The content of SDF - 1 were also measured by real-time quantitative PCR

RESULTS Compared with the control group, SDF - 1 levels were significantly elevated, and LVEF, LVFS and GRS were reduced. However, LVEDd were significantly increased. The content of SDF - 1 and GCS has a negative correlation (r =-0.580, P = 0.000).

CONCLUSIONS The content of SDF - 1 in myocardial tissue have a certain relationship with GCS of left ventricular myocardium.

GW26-e1370

A preliminary study on carotid longitudinal modulus of elasticity using new shear wave elastography

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OBJECTIVES To evaluate the longitudinal elastic modulus in patients with acute ischemic stroke using new shear wave elastography.

METHODS There were 183 cases with acute ischemic stroke (AIS) including 111 cases with large artery atherosclerosis (LAA) and 76 cases with lacunar infarction (LAC) classified according to the TOAST classification. There were 176 age and sex-matched cases as control group. Pulse wave velocity (PWV) of bilateral carotids was measured by RF ultrasound technology. The average values of longitudinal average elastic modulus (MEmean), the maximum elastic modulus (MEmax) and minimum elastic modulus (MEmin) in the 20 areas of superficial walls of bilateral carotids were analyzed by real-time shear wave elastography (SWE). Their related factors were analyzed.

RESULTS ①Compared with the control group, the PWV in patients with AIS was increased (P <0.05). ②The MEmax and MEmean of carotid artery in patients with AIS were more than those in the control group (P <0.05). ③MEmean and MEmax were positively related to Age, systolic blood pressure, CCAD, PWV, LDL, and were negatively correlated with TC (P all<0.05).

CONCLUSIONS Carotid longitudinal elastic modulus measured by SWE can evaluate the arterial stiffness.

GW26-e1405

Use of vector flow mapping to detect changes in left ventricular blood flow in patients with end stage renal disease

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OBJECTIVES We assessed the accuracy of vector flow mapping (VFM) to study changes in left ventricular blood flow field parameters in patients with end stage renal disease.

METHODS Thirty eight patients (30 men, 8 women, aged 21-59 years old, mean±standard deviation [SD] 37±11 years) diagnosed with end stage renal disease were selected as case group. All patients had no smoking history. Thirty three healthy persons (25 men, 8 women, aged 20-55 years old, mean ± SD 39±10 years) were selected as control group. All the control group subjects had no history of heart diseases, normal blood tests and resting 12 lead ECG. Using real-time B-mode ultrasound (F75®, Hitachi-Aloka Company, Tokyo, Japan) with a UST-52105 cardiac probe (Hitachi-Aloka). After a conventional echocardiography examination, an apical four-chamber view was selected to display the mitral valve. We performed color Doppler sampling, including the left ventricle, mitral valve, and part of the left atrium. Dynamic images were obtained and stored for three stable consecutive heartbeat cycles. These stored images were analyzed off-line with commercial software (DAS-RS1 version 3.0®, Hitachi-Aloka). We measured the maximum vortex area and maximum vortex intensity in the patients and controls during the left ventricular filling phase (including rapid filling phase and slow filling phase), the atrial systolic phase, and the left ventricular systolic phase. Data were processed using commercial software (SPSS 19.0®, IBM, Armonk NY, USA). Numerical data are presented as mean ± SD. Differences between groups were compared using t-tests, with P < 0.05 being considered statistically significant.